AMENDMENTS TO THE CLAIMS

Without prejudice, please amend the claims as reflected in the following listing of claims, which will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 – 57 (cancelled)

58. (currently amended) A method for initiating nuclear fusion in a fusionable material, the method comprising ~~the steps of~~:

introducing ~~a quantity of~~ the fusionable material into a liquid filled vessel;

determining ~~the~~ a location of the fusionable material in ~~the~~ said liquid filled vessel; and

directing an acoustic pulse towards ~~the determined location of~~ the fusionable material at said location such that ~~the~~ said acoustic pulse ~~symmetrically~~ converges on the fusionable material ~~thus increasing~~ and sufficiently increases the temperature and pressure thereof ~~to a sufficient extent~~ to initiate nuclear fusion in the fusionable material.

59. (currently amended) The method ~~according to~~ of claim **58**, wherein directing comprises directing ~~the~~ said acoustic pulse ~~is directed~~ to a fixed location in ~~the~~ said vessel and ~~the step of~~ determining ~~the~~ said location of the fusionable material comprises determining whether the fusionable material is within a pre-determined distance from ~~the~~ said fixed location ~~before~~ and further comprising initiating ~~the~~ said acoustic

pulse when the fusionable material is within said pre-determined distance of said fixed location.

60. (currently amended) The method ~~according to~~of claim **59**, further comprising ~~the further step of~~ actively directing the fusionable material towards ~~the~~ said fixed location.

61. (currently amended) The method ~~according to~~of claim **58**, wherein directing said ~~the~~ acoustic pulse comprises initiating a plurality of independently generated acoustic pulses timed to ~~and directing the acoustic pulse comprises timing the initiation of the independently generated pulses to~~ produce a ~~composite~~ converging acoustic pulse that converges on ~~the~~said ~~determined~~ location of the fusionable material.

62. (currently amended) The method ~~according to~~of claim **58**, wherein ~~the quantity of fusionable material is buoyant in the liquid and~~ the fusionable material is introduced into ~~the~~ said liquid filled vessel at a lower end of ~~the~~ said vessel and allowed to rise under hydrostatic forces to a position proximate the center of ~~the~~ said vessel.

63. (currently amended) The method ~~according to~~of claim **62**, wherein directing comprises directing said ~~the fusionable material is introduced at a lower end of the vessel and the~~ acoustic pulse ~~is directed~~ towards the fusionable material when the fusionable material reaches said position ~~has risen to a location~~ proximate the center of ~~the~~ said vessel.

64. (currently amended) The method ~~according to~~of claim **62**, further comprising ~~the step of introducing~~causing a flow in the liquid~~, the flow for directing~~ to direct the fusionable material towards a desired location in ~~the~~ said vessel.

65. (currently amended) The method ~~according to~~of claim **64**, wherein causing ~~the~~ said flow comprises aligning a direction of said flow ~~direction is aligned~~ with the direction of ~~the~~ said hydrostatic forces.

66. (currently amended) The method ~~according to~~of claim **58**, wherein determining ~~the~~ said location of the fusionable material comprises determining a first location for the fusionable material and using ~~the~~ said first location to predict a future location of the fusionable material.

67. (currently amended) The method ~~according to~~of claim **58**, wherein introducing the fusionable material ~~is introduced~~comprises introducing the fusionable material in the form of a gaseous bubble.

68. (currently amended) The method ~~according to~~of claim **67**, further comprising ~~wherein the gaseous bubble is very small when it is introduced and the bubble is allowed to expand by rapidly~~ reducing the pressure in ~~the~~ said vessel immediately prior to directing ~~the~~ said acoustic pulse ~~at~~towards ~~the~~ said gaseous bubble of fusionable material to cause said gaseous bubble to expand.

69. (currently amended) The method ~~according to~~of claim **58**, further comprising containing ~~wherein~~ the fusionable material ~~is contained~~ in a micro-balloon.

70. (currently amended) The method ~~according to~~of claim **58**, ~~wherein~~ further comprising generating ~~the~~ said acoustic pulse ~~is generated~~ by causing a plurality of ~~peripherally located~~ pistons to strike ~~striking the~~ said liquid filled vessel[[,]] by accelerating said pistons from an initial position that is peripherally spaced apart from said liquid filled vessel.

71. (currently amended) The method ~~according to~~of claim **70**, comprising controlling each of ~~the~~ said pistons ~~striking the vessel~~ such that ~~the~~said

~~generated~~ acoustic pulse converges to a desired location in ~~the~~ said liquid filled vessel.

72. (currently amended) The method ~~according to~~of claim 70, further comprising causing energy ~~wherein a residual acoustic pulse energy~~ remaining in said acoustic pulse after the nuclear fusion has been initiated ~~is used~~ to at least partially return ~~at least partially recompress~~ ~~the~~said pistons to said initial position.

73. (currently amended) The method ~~according to~~of claim 70, further comprising ~~wherein the fusion produces heat and~~using at least a portion of ~~the~~ heat produced as a result of the nuclear fusion ~~is used~~ to produce steam[[,]] and causing at least a portion of ~~the~~ said steam ~~being used~~ to at least partially return said~~re-compress~~ ~~the~~ pistons to said initial position.

74. (currently amended) The method ~~according to~~of claim ~~73~~58, ~~wherein the~~ further comprising using at least a portion of heat produced as a result of the nuclear fusion to produce steam and using said steam to ~~portion of the steam not used to recompress the pistons is used to~~ drive a steam turbine for ~~converting the heat energy into~~generating electrical energy.

75. (currently amended) A nuclear fusion reactor apparatus comprising:

a vessel for containing a liquid;

an aperture in said vessel for introducing ~~a quantity of~~ fusionable material into ~~the~~ said vessel;

a ~~fusionable material~~ tracking system for determining ~~the~~ a location of the fusionable material in ~~the~~ said vessel; and

a pulse ~~generation~~ generator operable to generate and direct ~~system for generating~~ an acoustic pulse~~, the pulse being directed~~ toward ~~the determined~~said location of the fusionable material such that ~~the~~ said acoustic pulse ~~symmetrically~~ converges on the fusionable material ~~thus increasing~~and sufficiently increases the temperature and pressure thereof ~~to a sufficient extent~~ to initiate nuclear fusion in the fusionable material.

76. (currently amended) The ~~reactor~~apparatus ~~according to~~of claim **75**, wherein ~~the~~ said tracking system comprises ~~one or more~~ an ultrasonic ~~sensors~~ sensor for measuring ~~the~~ said location of the fusionable material.

77. (currently amended) The ~~reactor~~apparatus ~~according to~~of claim **75**, further comprising a ~~fusionable material~~ positioning system ~~for~~ operable to direct ~~directing~~ the fusionable material to a desired location in ~~the~~ said vessel.

78. (currently amended) The ~~reactor~~apparatus ~~according to~~of claim **77**, wherein ~~the~~ said positioning system comprises a plurality of ~~peripherally located~~ jets located peripherally about said vessel and oriented towards the center of ~~the~~ said vessel.

79. (currently amended) The ~~reactor~~apparatus ~~according to~~of claim **75**, wherein ~~the~~ said pulse ~~generation system~~generator comprises a plurality of ~~independent~~ acoustic pulse generators operably configured to produce said acoustic pulse and wherein ~~the~~ said tracking system ~~provides~~ produces a plurality of signals ~~for timing the initiation of the~~operable to control said acoustic ~~independent~~ pulse generators such that ~~the~~ said acoustic pulse is directed toward ~~the determined~~said location of the fusionable material.

80. (currently amended) The ~~reactor~~apparatus ~~according to~~of claim 75, wherein ~~the~~ said pulse ~~generation system~~generator comprises a plurality of ~~peripherally located~~ pistons located peripherally about said vessel, said pistons being operable ~~disposed~~ to ~~strike the outside surface of the vessel thus generating~~generate ~~an~~said acoustic pulse ~~in the liquid~~ by impacting the outside of said vessel.

81. (currently amended) The ~~reactor~~apparatus ~~according to~~of claim 80, wherein ~~the~~ said vessel is spherically shaped and ~~the plurality of~~said pistons are located to ~~strike~~impact ~~the~~ said vessel at ~~a plurality of~~ spherically symmetric locations.

82. (currently amended) The ~~reactor~~apparatus ~~according to~~of claim 81, wherein each of ~~the~~ said plurality of pistons is sized and actuated to ~~strike~~impact ~~the~~ said vessel with a substantially ~~identical~~ similar kinetic energy.

83. (currently amended) The ~~reactor~~apparatus ~~according to~~of claim 80, comprising a position sensor associated with each piston ~~for~~ operable to provide ~~providing~~ a feedback signal for controlling ~~the~~ said impact of each piston ~~on the vessel~~.

84. (currently amended) The ~~reactor~~apparatus ~~according to~~of claim 83, comprising a controller configured to ~~synchronize~~ control ~~the~~said ~~impact~~ impacts of ~~the~~ said pistons such that ~~the~~ said acoustic pulse converges on a desired location in ~~the~~ said vessel.

85. (currently amended) The ~~reactor~~apparatus ~~according to~~of claim 80, comprising a heat exchanger in fluid communication with ~~the~~ said vessel for extracting ~~at least a portion~~some ~~of the~~ heat energy generated by the fusion.

86. (new) The apparatus of claim **83**, wherein said position sensor comprises an optical fiber interferometer.

87. (new) The method of claim **58**, wherein directing said acoustic pulse comprises initiating a plurality of independently generated acoustic pulses and further comprising controlling the amplitude of said independently generated pulses to produce an acoustic pulse that converges on said location of the fusionable material.